



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

The following communications were then presented:

By Mr. Arthur Hollick, "On Palm Leaves from the Cretaceous Strata at Glen Cove, L. I." The paper is printed in the present BULLETIN.

By Dr. Thomas Morong, on "The North American Species of *Smilax*." The paper was fully illustrated by numerous specimens and was discussed by Messrs. Hollick, Curtiss and Rusby.

By Dr. Britton and Mr. Kraemer, "On a Collection of Plants made by Dr. Timothy E. Wilcox, U. S. A., in the Vicinity of Fort Huachuca, Arizona." Several species new to the United States Flora were presented.

The presentation by the editor of a copy of Dr. Morong's Monograph of the North American Naiadaceæ, MEMOIRS, Vol. III., Part 2, elicited an expression of thanks from the author to members of the Club for their assistance, by which it had been possible for his work to become published.

Index to Recent Literature Relating to American Botany.

Abutilon—*Ueber die Gattung*. A Garcke (Engler's Bot. Jahrb. xv. 480-492).

Agave filifera. L. Münzer (Monatsb. Kakteenk. iii. 17).

Note on the flowering of this species in the Berlin Botanical Garden.

Botanical Congress—*An International*. Chas. E. Bessey (Amer. Nat. 1893, 279).

Dr. Bessey, as Vice President of the Section of Botany, A. A. A. S., has appointed a committee of eleven botanists to arrange for an international Botanical Congress to be held at Madison next August.

Buttonwood.—*The*. J. T. Rothrock (Forest Leaves, iv. 5, 6).
With a fine illustration of *Platanus occidentalis*.

Catalogue of the Flowering Plants and Vascular Cryptogams, found in and near Lackawanna and Wyoming Valleys, Pa. William R. Dudley and Charles O. Thurston (Wilkes-Barre, Pa., 1892).

This is substantially a reprint of the preliminary list published in 1887 by Prof. Dudley (then of Cornell, now of the Leland Stanford University, Cal.), in the Proceedings of the Lackawanna Insti-

tute of Scranton, altered and enlarged by the addition of species since collected, with the aid of Prof. C. O. Thurston, of the Wyoming Seminary at Kingston. The typography is excellent, and the style of the whole and the paper are all that can be desired. The number of additional species reported is not as great, however, as might have been expected. Of the few rare ones new to Pennsylvania *Pyrus sambucifolia*, Cham. and Schlecht., discovered near Luzerne by Prof. Thurston, who has kindly sent me a specimen, is, perhaps, the most interesting. His description of the spot where it was found excludes all suspicion of escape from culture. The only thing that mars the value of this beautiful catalogue is that no herbarium exists behind it, by which its contents could be verified.

T. C. P

Coccocypselum hirsutum (Bot. Mag. t. 7278).

Native of Central America and Trinidad.

Compositæ, Observations on the—III. Edward L. Greene (Erythea, i. 53–56).

Discussion of the characters and relationships of the genera *Coleosanthus* and *Kuhnia*.

Cornels or Dogwoods. (Garden, xliii. 152.) *Cornus florida* is figured, and a number of other species mentioned.

Development of Spermagonia in Cæoma nitens. H. M. Richards. (Proc. Amer. Acad.)

This contribution from the Cryptogamic Laboratory of Harvard University (xix) shows that the spermagonia start "from an outgrowth between and not in the epidermal cells of the host." The pressure induced by the multiplication of fungous cells causes a breaking away and final absorption of the adjoining epidermal cells and the abnormal increase in size of those surrounding the forming spermagonium. A plate adds emphasis to the details of the process as described in the paper.

B. D. H.

Flora of Cumberland, Md. (5 pages, no author given [Howard Shriver]; no date given [1892].)

An alphabetical list of several hundred species collected for the Cumberland High School.

Immigrant Plants in Los Angeles County, California. Anstruther Davidson (Erythea, i. 56–61; 98–104).

Jussiaea repens of Linnæus. F. von Mueller (Erythea, i. 61, 62).

Prof. Greene prints a letter from Baron von Mueller, calling attention to the fact that the true *Jussiaea repens*, L., occurs only in India, and that the North American plant so-called is probably *J. diffusa*, Forsk.

Lespedeza—*The North American Species of*. N. L. Britton. (Trans. N. Y. Acad. Sci. xii. 57-68; reprinted as Contrib. Herb. Col. Coll. No. 34.)

Twelve species are recognized and concisely described. Notes are given on distribution and on type specimens. Two new varieties are proposed.

Lichens of Lancaster County, Pennsylvania—Preliminary Enumeration of the. A. A. Heller (pp. 4, Lancaster, 1893).

A list of 78 species, with localities and habitats.

Loco—Some Observations upon. Dr. Mayo (Bull. Kans. Agric. Exp. Sta. No. 35).

The author concludes that the "Loco" disease is the result of malnutrition caused by the affected animals eating freely of *Astragalus mollissimus*, or *Oxytropis Lamberti*. The presence of any narcotic principle in these plants is doubted.

Mangrove-tree—The. (Garden and Forest, vi. 97).

With two illustrations of *Rhizophora Mangle*, one showing the tree rising from a mass of underbrush, the other showing the lower part of the trunk and the roots.

Mamillaria prismatica. (Bot. Mag. t. 7279).

Native of Mexico. A species of the group *Anhalonium*.

Metaspermæ of the Minnesota Valley. Conway MacMillan. (Rept. Geol. and Nat. Hist. Surv. Minn. Botanical Series, i. cloth, pp. 826, two maps; Minneapolis, Minn., dated Dec. 29, 1892).

In his preface the author expresses satisfaction at the action of the Botanical Club of the A. A. A. S., taken at the Rochester meeting of 1892, in its endeavor to establish nomenclature "upon some other than a personal basis," and states that the initial date, 1753, would have been adopted by him, for genera as well as species, in this work, had not most of it been in type when the Club's action was taken. In order to comply with the principle,

however, the following list is inserted for the convenience of those who may wish to note the necessary changes:

- Mariscus*, Hall. (1742). = *Cladium*, P. Br. (1756).
Cyperella, Cram. (1744). = *Juncodes*, Adans. (1763).
Ramium, Rumpf. (1747). = *Boehmeria*, Jacq. (1763).
Stellularia, Linn. (1748). = *Stellaria*, Linn. (1753).
Leuconymphaea, Ludw. (1737). = *Castalia*, Salisb. (1805).
Nymphaea, Ludw. (1737). = *Nymphaea*, Salisb. (1805).
Capnorchis, Ludw. (1737). = *Bikukulla*, Adans. (1763).
Cracca, Linn. (1747). = *Colonilla*, Adans. (1763).^{*}
Ricinocarpus, Burm. (1737). = *Acalypha*, Linn. (1753).
Stellaria, Ludw. (1737). = *Callitriche*, Linn. (1753).
Lapula, Hall. (1745). = *Lappula*, Moench. (1794).
Leptostachya, Mitch. (1748). = *Phryma*, Linn. (1753).
Pentagonia, Sieg. (1737). = *Legouzia*, Dur. (1782).

The rule which excepts duplicate binomials, as *Phragmites* *Phragmites* (Linn.) from the law of priority, is also gracefully accepted, and wherever such binomials are found in the work the request is made that the second oldest specific name be used, although the author was not and is not now in sympathy with any such exception. The above binomial would thus become *Phragmites vulgaris* (Lam.).

An exceedingly terse and sharp enunciation of the author's views in regard to the question of nomenclature may be found under the heading "Citation of authors of genera and species" beginning on p. 11, which is worthy of attention from all who still believe in the "position of naming-plants-as-one-pleases." In tracing the history of the movement towards a stable system of nomenclature in America, Prof. Britton is given undue prominence. The argument was begun by Prof. Greene.

In its general classification the work is not only well abreast of the times, but far ahead of all our manuals and text books. All schemes of classification are necessarily evanescent or at least should be sufficiently elastic to permit of interpolation or amendment whenever newly discovered facts render it advisable or necessary, and, as the author says: "While, therefore, the constant shifting from one classification to another is exasperating to the

^{*}*Cracca*, L., appears in the "Species Plantarum" of 1753.

conservative student, it is nevertheless a necessary result of advancing information, and to refuse to consider the new systems which may be put forth in scientific fashion, is as unreasonable as it was in those days when the railway carriages were first brought into use for one to insist upon traveling by the old stage lines of an earlier mechanical era."

The author believes that "the eye should be cast forward instead of backward, that the future should receive consideration as well as the past." He also evinces no consideration for those who would leave all changes and innovations in nomenclature and classification to monographers. He believes that the public has a right to demand the best and most advanced ideas and convictions, even in local floras and catalogues, and in this we are in hearty accord, as it is mostly through these that a large number of lay botanists must receive such education, the ordinary text book being necessarily years behind the times.

The scheme of classification adopted in this work is based upon the most recent investigations in plant morphology.

Two main groups are recognized: A. PROTOPHYTA and B. METAPHYTA, based upon the absence or presence of sexuality. Exact limits between the two are necessarily impracticable, on account of the presence of transition forms, some of which seem to indicate a progressive development from the lower to the higher group—others which appear to be undergoing a retrograde metamorphosis. The Metaphyta are divided into I. GAMOPHYTA and II. SPOROPHYTA, dependent upon the development of the fertilized ovum. As examples of i. are given "the lower Zygomycota and Oomycota of Bessey, plants like the pond-scum (*Zygnema*) or the black-mould (*Rhizopus*, *Mucor*)." Division ii. would therefore comprise practically all plants with which we are familiar in the entire range of botany, except what we have been in the habit of calling the Protophyta and lower Thallophyta. In the Sporophyta three "alliances" are recognized:

(I). Thallophyta, which includes the seaweeds, fresh water algae, and the higher spore-fruit-producing fungi, such as mushrooms and puff balls.

(2). Archegoniataë, which includes such forms as *Chara* and *Nitella*, the Hepaticae, the Musci, the Filices and their allies, Cycads, Conifers, etc.

(3). Metaspermæ, which includes all those plants formerly classed under Angiospermæ, or, in the words of the author, examples of the Metaspermæ may be selected from the great mass of plants which contain their seeds in a closed "ovary," better named "carpellum." These, then, are alone what have been considered by the author in the present work. Even our old and apparently firmly established friends the Mono- and Dicotyledones have been transferred to a more subordinate position than they once held, and we find the metaspermæ divided primarily into Chalazagamæ, consisting of the single genus *Casuarina*, and Porogamæ, which includes all the other Metaspermæ and in which the Mono- and Dicotyledons are at last permitted to figure as subdivisions. The former are not subject to any further subdivisions, but the latter are arranged, in accordance with the morphology of the perianth into Archichlamydeæ [Polypetalæ and Apetalæ], and Metachlamydeæ [Gamopetalæ]. The skeleton scheme of classification would thus appear:

A. Protophyta.

B. Metaphyta.

I. GAMOPHYTA.

II. SPOROPHYTA.

- (1) THALLOPHYTA.
- (2) ARCHEGONIATÆ.
- (3) METASPERMÆ.

Metaspermæ.

- (a) Chalazagamæ.
- (b) Porogamæ.

- 1. Monocotyledones.
- 2. Dicotyledones.

Archichlamydeæ.
Metachlamydeæ.

Under this arrangement the list begins with Porogamæ (Monocotyledones), Family Typhaceæ, Genus *Typha*, Species *T. latifolia*, Linn. and terminates with Family Compositæ, Genus *Hieracium*, Species *H. Canadense*, Michx. The total number of families enumerated is 106, genera 407, and species and varieties 1,174.

The number of changes in long established names is necessarily considerable. Most of them have, however, already been adopted by other progressive botanists and have appeared in print

elsewhere. We note with some amusement that the author's rigid conscientiousness has caused him to take up Rafinesque's misprint name "*Scoria*," instead of "*Hicoria*," as he originally wrote it. The limitations of many genera and families are curtailed or extended, as the case may be, and several old genera are revived.

The bibliography and synonymy cover families, genera and species and evince an immense amount of careful and conscientious research, which will save many hours of labor to future workers in metaspermic botany for which they owe the author a heavy debt of gratitude. An innovation which will be welcomed by many is the citation, under the genus, of any fossil form which may have been identified. In this connection the geological horizon, locality and authority are given.

Following the list is a general description of the region, which includes its geographical location, physiography, distribution of forest and prairie, soil, climate and geological history. The palæobotanist will find in the chapter entitled, "Relationships of the Metaspermic Flora of the Minnesota Valley," much of interest and more or less food for thought. The old problems in regard to plant dissemination and distribution are again brought forward. "How did the present plant inhabitants enter the Minnesota Valley?" "What relation does this modern plant-population bear to the more ancient one which was overwhelmed by the glacial detritus, piled 250 feet thick over the old level of the country?" "Under what laws did the repopulation of the Valley progress?" "Along what routes did the incoming plants travel?" etc. The author begins this discussion by calling attention to the constant condition of strain or tension that exists between plants or groups of plants in the struggle for existence—in other words their "dynamic inter-relation." Such a condition he thinks should be recognized more fully in terminology and suggests that instead of speaking of a "northern" group of plants we should designate it as the "*south-bound*" group, and similarly a southern group might be called a "*north-bound*" group, as these plants, already established in the north or south, as the case may be, have probably reached their limits of extension to the north and south respectively, and whatever further extension is to be accomplished must be southward for the

northern plants and northward for the southern plants. A line or area of tension is thus formed, and if the world in general is considered, two main tension areas or zones will be apparent, one to the north and another to the south of the equator. In these zones of tension, where the competition between northern and southern forms is greatest, transitional floras are to be found. In the Minnesota valley the author notes the fact, which has received attention in other localities, that the southern or north-bound plants are largely endemic, or in other words American in type, while the northern or south-bound ones are generally less so, in other words foreign in type.

The division of the earth into natural vegetation regions has been attempted by several authorities, notably by Griesbach, Engler and Drude, all of whose regional classifications are given in full and discussed in so far as North America is concerned. The author's conclusions are that there is a greater homogeneity in the regions of the northern than in those of the southern hemisphere, the reasons being both geographical and geological. Geographically the facilities for migration and commingling are much more favorable in the northern than they are in the southern hemisphere, which latter consists of a series of isolated areas, whereas the former is practically a compact circle of land surrounding the pole, broken only by narrow bodies or arms of water. Geologically all the evidence is in favor of a closer relationship in recent times between Asia and North America than between the latter and Europe, and modern biological researches strongly emphasize the evidence. It has long been a well recognized fact that the plants of Greenland are remarkably distinct from those of Scandinavia, whereas the floras of Alaska and Northeastern Asia show but slight differences one to the other. The glaciation of the Ice Age also had a profound influence in modifying the distribution of the plants which previous to that time occupied the Arctic and sub-Arctic regions. In North America, where the mountain chains extend north and south, these plants could migrate or remain undisturbed to the south of the ice sheet; whereas in the old world, where the mountain systems are largely east and west, such plants would be cut off from any means of southward migration and would necessarily perish. "Decimation

of old world species would thus result in the conditions of difference as seen to-day between the old world and North America."

Returning again to the subject of "Pressures and Tensions," the conclusion is reached that, "Under the positive equatorial pressure opposed by the negative polar pressures, a segregation of metaspemic plants would take place," that is, the weaker or older types of plant life would gradually find themselves crowded out in the struggle for existence. Another result which the author emphasizes is that the weaker ones are forced to fight in the front, and as an example of this principle cites the line between forest and prairie in the Minnesota valley, where he says: "It is not the characteristic grass of the prairie that grows close up to the characteristic tree of the forest, but between the two there is a zone of plants not perfectly established in either forest or prairie. This transitional formation * * * is generally composed of species weaker than the characteristic plants of either formation."

Under the present climatological conditions the author assumes, just why he does not make apparent, that the equatorial pressure is increasing, while that of the poles is decreasing, and that the line of tension is thus gradually progressing towards higher latitudes, although liable to local fluctuations due to physical and biological causes. In effect, this is putting into a somewhat different shape the observation of recent investigators, that there is an apparent gradual northward movement of our flora, which has been ascribed to a continuous amelioration of climate since Glacial times.

The influence of this pressure is also discussed in its relation to the specialization of the structure and habitat. Thus the least specialized plants, the aquatic, occupy the least specialized habitat, whilst amongst the most highly specialized, as for instance, the epiphytic orchids in the group of Monocotyledones, occupy the most highly specialized habitat.

Secondary longitudinal tensions, which are lines due to local geography, and minor tensions, due to the influence of topography in limited localities, are also discussed.

Under the heading "Outlines of Metaspemic History in the Northern Hemisphere" may be found a brief resume of what is known in regard to the development of the higher forms of vege-

table life since Jurassic times, with special reference to the Cretaceous or Tertiary floras which have been identified in the region under discussion. With the advent of the Ice Age of course all these were destroyed except such as could migrate or exist southward. The author concludes that of all these "none showed greater capacity for variation and improvement than the ancestral forms of the modern dominant family of the Compositæ," whose seeds could fly before the prevailing north winds or attach themselves to the fur of migrating animals, and would be assisted on their return by similar influences. Necessarily the changes in soil, climate and topography would so alter the conditions that a majority of the species could not exist over the region once occupied by them. Others perished by the way, and most of them were modified in one direction or another in their Tertiary southward migration and their subsequent northward migration in recent times.

At the present day the same or similar forces are at work changing or modifying the distribution and structure of plants, but a new element, the influence of man, is now at work. Thus in the Minnesota valley he is responsible, according to the author, for the introduction and establishment of 130 alien forms and the extermination of many native ones from localities where they were once abundant.

Under the statistical discussion of the facts, which occupies about 150 pages, at the close of the volume, may be found a great many interesting and often significant results and comparisons, which want of space does not permit us to review.

A complete family, generic and specific index, with synonyms in italics, terminates the work. It could hardly be rendered more exhaustive, and may be taken as a type of what such books should be. We trust that the author has in mind a work which shall cover the Archægoniata and that it will be carried to completion in the same thorough, conscientious and progressive spirit.

A. H.

Monarda fistulosa—*Notes on, and the Phenomenon of Fertilization in the Flowers of.* Thomas Meehan, Ida A. Keller (Proc. Acad. Nat. Sci. Phila., 1892, 449-454; one plate; reprinted).

Monterey Bay—A Month on the Shores of. Marshall A. Howe (Erythea, i. 63–68).

A contribution to the local algology of the California coast with a list of about 105 species collected.

Musci Americæ Septentrionalis, ex operibus novissimis recensiti et Methodice dispositi. Renauld et Cardot (Rev. Bryol. xx. 1–32, 1893).

This second part completes the check-list of North American mosses, with 1370 numbers. The resume at the end states that 675 are endemic; 297 occur in Europe and Siberia; 348 in Europe alone, and 12 in Siberia alone; 91 in the West Indies, Mexico, or South America, and 76 in Japan. We are sorry for the collector who attempts to exchange or complete his herbarium with this as a basis. We note a certain carelessness of citation, for which Macoun's Catalogue is responsible, as in the case of *H. Flemingii*, Austin (not L. & J.). We had supposed *H. Bergenense*, Aust. was a synonymn of *H. hygrophilum* (Jur.) Sch., but we find both cited as 1230 and 1253. Nos. 1189–1191 are credited to L. & J., not to Austin as they should be, *H. Oakesii*, to Schimper, not to Sullivant, and *H. Pyrenaicum*, which antedates it, according to Lindberg, is ignored.

In fact the whole catalogue shows that we are in need of a new American check-list, on the basis of the Rochester Code, in which some effort shall be made to sift the good from the bad, and the typography shall be less straining to the eyes than the one just printed. We shall hope to see it issued by American authors.
E. G. B.

Opening of the Buds of some Woody Plants.—A. S. Hitchcock (Trans. Acad. Sci. St. Louis, vi. 133–141; four plates; reprinted).

Pellaea gracilis (Meehan's Monthly, iii. 33, plate 3).

Pilocereus Melocactus.—K. Schumann (Monatsb. Kakteenk. iii. 20–25).

Native of Brazil.